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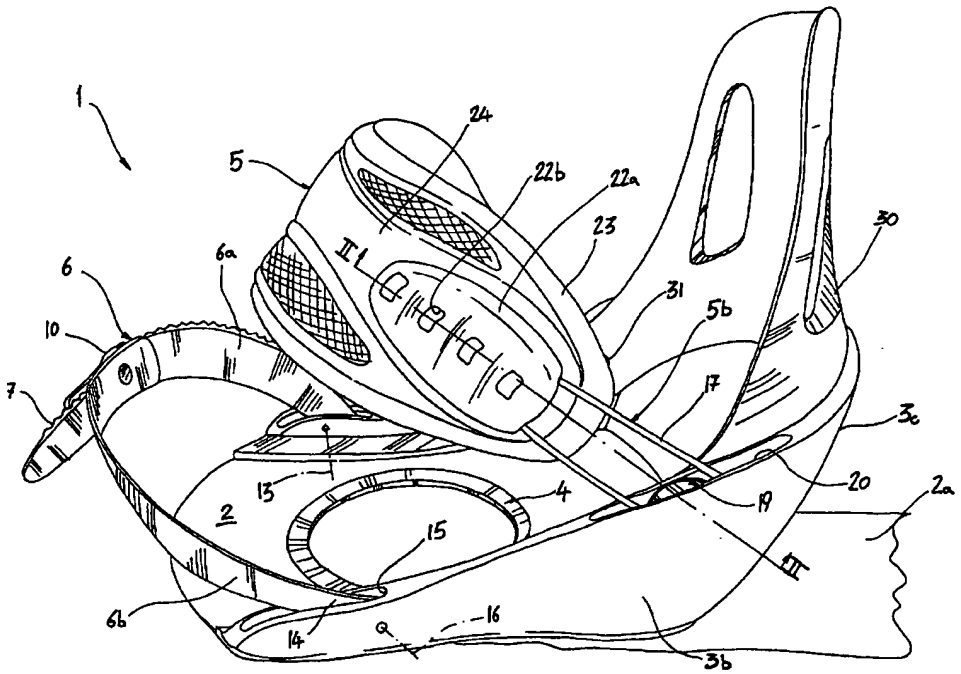
(54) Title: A SNOW-BOARD BINDING



(57) Abstract: A snow-board binding is described and comprises a base (2) for supporting a footwear, at least one strap fastening (5, 6) connected to the base for restraining the footwear on the base (2), and means for connecting means comprising a first portion (17) of the strap fastening (5, 6) having greater flexibility than any remaining portion of the strap fastening.

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

A snow-board binding

Technical field

The present invention relates to a snow-board binding according to the preamble to main Claim 1.

Technological background

In the technical field referred to, a need has arisen to facilitate the fitting and adjustment of these bindings on footwear so that they can be adapted to the snowboarder's various requirements as well as to the existing shapes of foot and footwear.

In most cases, the footwear is held on the base of the binding by means of two or more strap fastenings, each formed by two straps which can be closed onto one another by means of a fastening device for varying the extent to which the straps are tightened onto the user's footwear. Both straps of the strap fastening are made of relatively stiff plastics material to ensure the necessary support and clamping of the footwear during sports activities.

However, owing to the stiffness of the material, the fitting of the binding on the footwear is obstructed by the two straps of the strap fastening which, for this purpose, have to be deformed resiliently in order to move them apart for this purpose.

Description of the invention

The main object of the invention is to provide a snow-board binding including at least one strap fastening which is designed structurally and functionally for more convenient fitting on the footwear and improved adaptability to very varied shapes of foot and/or footwear.

A further object of the invention is to optimize the coupling between the footwear and the binding.

Yet another object of the invention is to render the operations necessary to adjust the binding particularly quick and easy.

These objects and others which will become clearer from the following description are achieved by the invention by a snow-board binding formed in accordance with the following claims.

Brief description of the drawings

The characteristics and the advantages of the invention will become clearer from the detailed description of a preferred but not exclusive embodiment thereof, described by way of non-limiting example with reference to the appended drawings in which:

Figure 1 is a perspective view of a snow-board binding according to the invention,

Figure 2 is a view showing a detail of the binding on an enlarged scale and sectioned on the line II-II of Figure 1, and

Figure 3 is a further, partial perspective view of the binding of Figure 1.

Preferred embodiment of the invention

With reference to Figure 1, a snow-board binding formed in accordance with the present invention is generally indicated 1.

The binding 1 comprises a base 2 which can house a snow-board shoe or boot (not shown) and is arranged to be fixed to a snow-board 2a (shown partially) in an angularly adjustable manner by conventional connection means 4, shown partially.

The base 2 has two facing and opposed side walls 3a, 3b, which are connected at the rear by a bridge-like support

3c, together defining a seat for housing the user's shoe or boot.

The binding 1 further comprises a pair of strap fastenings that is, a rear strap fastening 5 and a front strap fastening 6, for holding the shoe or boot on the base 2. The rear strap fastening 5 is connected to the base in the manner described below so as to act on the instep and ankle region of the user's foot, and the upper surface of the foot is acted on by the front strap fastening 6.

Each strap fastening comprises two straps 5a, 5b or 6a, 6b, respectively, between which a respective adjustable fastening 9, 10 is disposed.

Each of the straps 5a, 6a comprises a toothed portion 7 and is anchored by one end 11 in a compartment 12 of the respective side wall 3a so as to be pivotable about an axis 13.

The strap 6b is anchored by one 14 of its ends in a compartment 15 of the respective side wall 3b so as to be pivotable about an axis 16. The strap 6b carries, at its free end, the fastening 10 which is of the type that is arranged for bringing about unidirectional, manually-released clamping onto the toothed portion of the strap 6a.

The strap 5b of the strap fastening 5 comprises a first portion which constitutes the means for connecting it to the base 2 and which is in the form of a loop 17 of flexible metal cable covered by a sheath of plastics material and closed onto itself around an anchoring pin 18. To prevent extreme angles of wrapping of the metal cable, a pulley 19 is interposed between the loop 17 and the pin 18 and the whole is housed and protected in a compartment 20 of the side wall 3b. At the end remote from the pulley 19, the

loop 17 is anchored in an adjustable position on teeth 21 of a rack 22. The rack 22 is protected by a cover 22a provided with holes 22b through which it is possible to see the underlying teeth 21 and thus to select the point of engagement of the loop 17 for the desired adjustment. The rack is in turn fixed on top of a second portion 23 of the strap 5b in the form of an element for distributing the clamping load of the fastening 5 over the user's instep. The rack 22 is fixed by means of two screws 32, 33 which also have the function of means for anchoring the cover 22a on the rack 22. The second portion 23 is widened and padded and is also equipped with a fairly stiff covering band 24 of plastics material on which the adjustable fastening 9 is anchored.

The fastening 9 is of known type with a lever 25 pivoting on a base 26 and provided with teeth 27 for engaging the toothed portion 7 of the strap 5a and pulling it along in the closure direction upon each operative pivoting movement on the base 26. The fastening 10 also comprises a pawl 28 mounted on the base 26 and acting on the toothed portion 7 in order to restrain the strap 5a unidirectionally. It will also be noted that a seat 29 is provided between the covering band 24 and the padded portion of the load-distributing element for the concealed housing of the portion of the strap 5a which projects beyond the fastening 10 as a result of the tightening of the strap fastening 5. The opening 29a of this seat 29 is visible in Figure 3.

Finally, the binding 1 is equipped with a rear support 30 connected for pivoting between the side walls 3a, 3b, for example, on pins 18 and 31.

In operation, during the fitting of the binding 1 on the footwear, the strap 5a of the strap fastening 5, which is conventionally the stiffer strap owing to the need to incorporate the element for distributing the clamping load of the fastening 5 over the instep of the user's foot, can easily be opened out, owing to the considerable intrinsic flexibility of the first, metal-loop portion 17 which not only allows the two straps 5a, 5b of the strap fastening to be opened out easily but even allows the strap 5b to be left resting on the snow-board in the opened-out condition, enabling the binding to be fitted on the footwear without using one's hands.

Once fitted on the footwear, the binding is tightened thereon by means of the fastenings 9 and 10. If necessary, the length of the strap 5b can be adjusted beforehand by changing the tooth 21 of the rack 22 on which the loop 17 is engaged.

The front strap fastening 6 may also have a structure similar to that of the rear fastening 5 described herein, with the same adjustment capabilities and flexibility. Moreover, the loop 17 may be made of non-metallic materials such as synthetic fibres, plastics materials, etc.

The present invention thus achieves the objects proposed, offering many advantages over the bindings of the prior art.

A first advantage is an extremely quick and easy fitting of the binding on the footwear since the strap fastening can be subjected to twisting or pivoting of any kind in the region of the metal loop without effort on the part of the user so that it does not obstruct the positioning of the footwear on the base of the binding.

Another advantage is that the cable used for the loop has a metal core, since this allows the cable to be very thin, favouring its flexibility but nevertheless ensuring its tensile strength.

Moreover the binding can be adapted in many ways to very varied morphological shapes of foot or to various types of footwear.

Finally, the adjustment both of the overall length of the strap fastening and of its inclination relative to the base of the binding is particularly easy.

CLAIMS

1. A snow-board binding comprising:

- a base (2) for supporting a footwear,

- at least one strap fastening (5, 6) connected to the base (2) for restraining the footwear on the base (2),

- means for connecting the strap fastening (5, 6) to the base (2),

characterized in that the connecting means comprise a first portion (17) of the strap fastening (5, 6) having greater flexibility than any remaining portion of the strap fastening.

2. A binding according to Claim 1 in which the first portion (17) is formed at least partially by a flexible cable.

3. A binding according to Claim 2 in which the first flexible-cable portion (17) is closed to form a loop.

4. A binding according to Claim 2 or Claim 3 in which the flexible-cable portion (17) comprises a metal core covered at least partially by a sheath of plastics material.

5. A binding according to one or more of Claims 2 to 4 in which the strap fastening (5, 6) comprises two straps (5a, 5b; 6a, 6b) one of which carries an element (23) for distributing the clamping load of the fastening over the instep of the user's foot, and in which the first, flexible-cable portion (17) is connected to the distributing element (23).

6. A binding according to one or more of Claims 3 to 5 in which the connecting means comprise a pulley (19) which is connected to the base and around which the loop (17) is closed.

7. A binding according to Claim 6 in which the pulley (19) is housed in a concealed manner in a compartment (20) formed in a side wall (3b) of the base (2).

8. A binding according to one or more of claims 5 to 7 in which the first, flexible-cable section (17) can be anchored in an adjustable position on the element (23) for distributing the clamping load.

9. A binding according to Claim 8 in which, in order to anchor the first flexible-cable portion (17) in an adjustable position on the distributing element (23), a rack (22) is provided on the distributor element (23) and the loop can be anchored selectively on each of the teeth (21) of the rack (22).

10. A binding according to Claim 9 in which each of the teeth (21) is U-shaped and the teeth (21) are spaced apart uniformly.

11. A binding according to Claim 9 or Claim 10 comprising a cover (22a) for the rack, (22) anchored removably thereto for protecting the teeth (21).

12. A binding according to one or more of the preceding claims, comprising a first strap fastening (5) and a second strap fastening (6) each of which comprises a first portion (17) for connection to the base (2) according to one or more of the preceding claims.

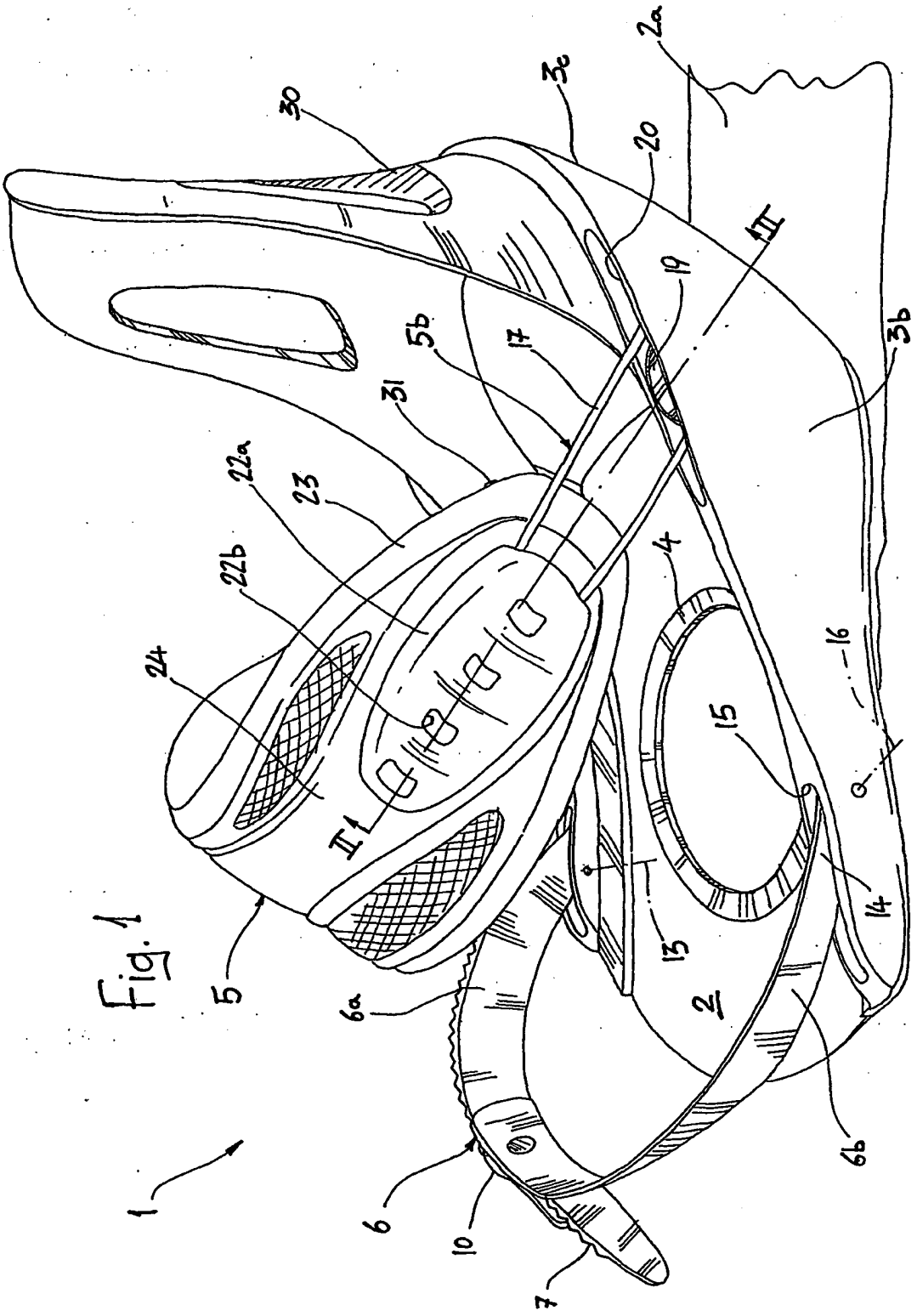
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Fig. 1

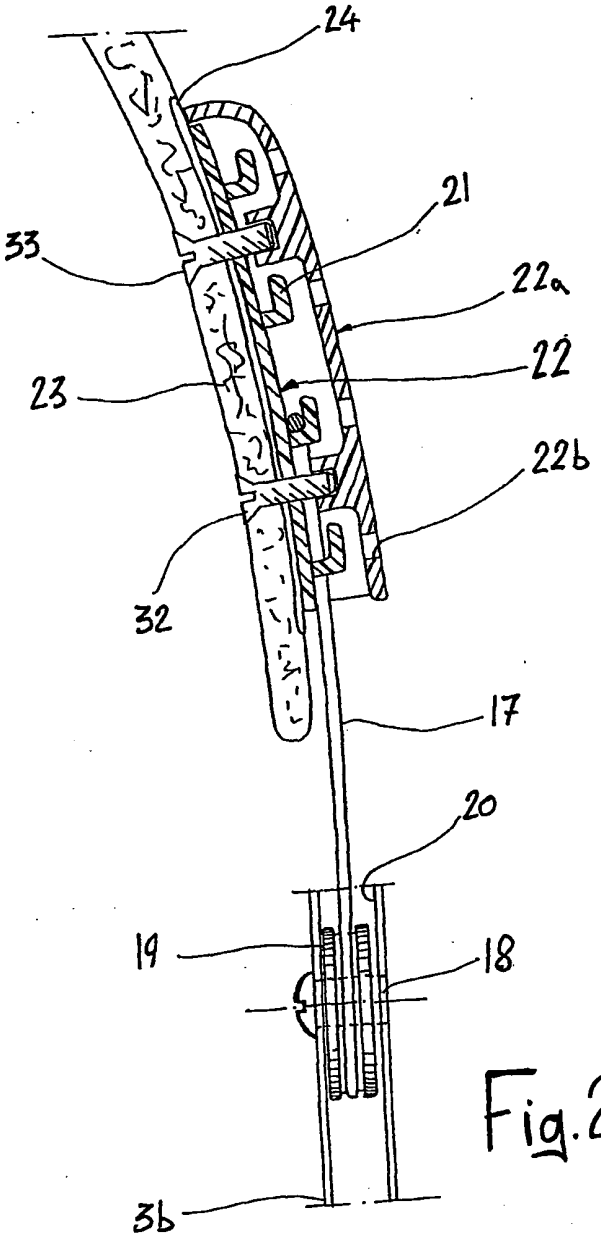
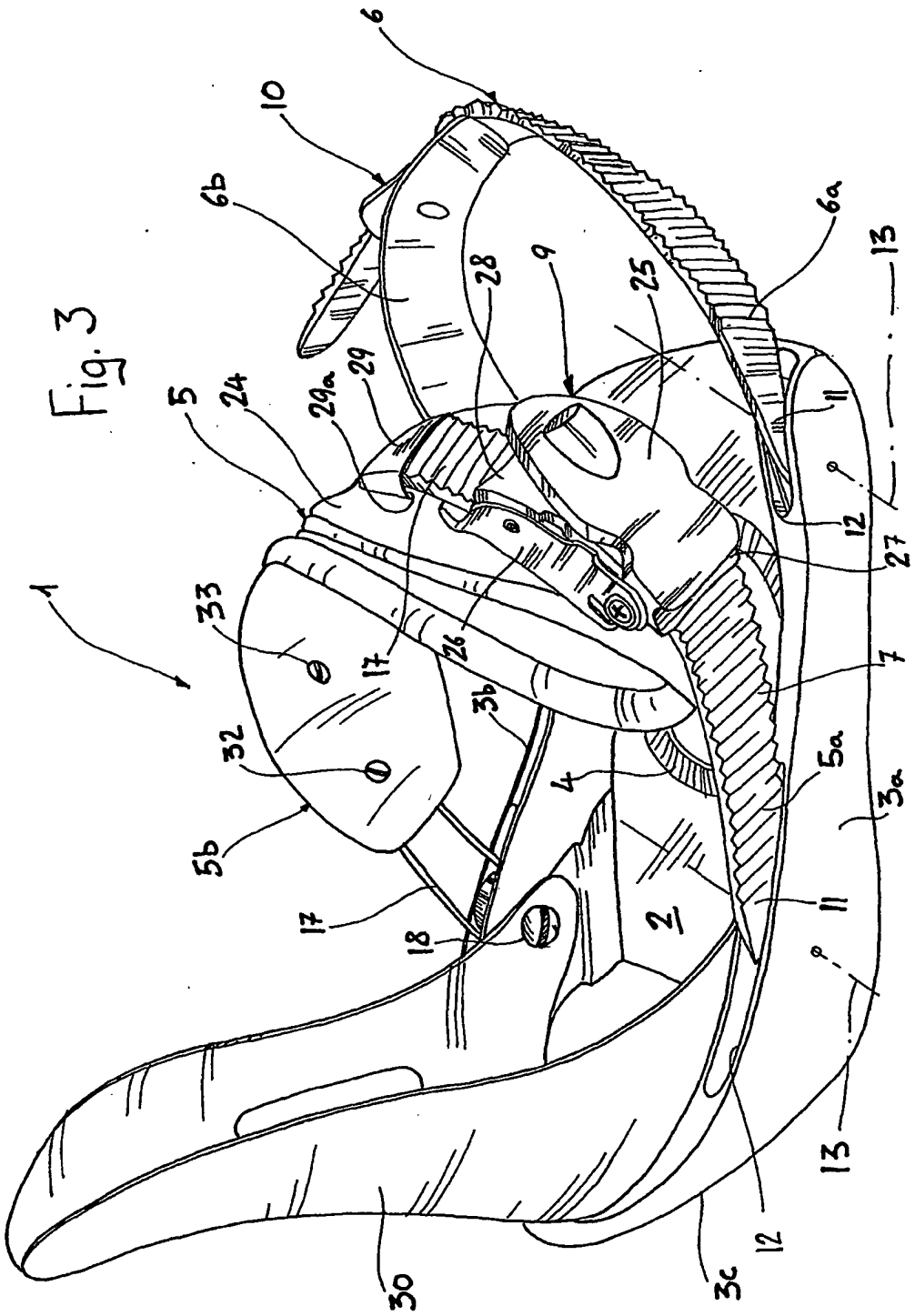


Fig.2

Fig. 3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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A63C9/08

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 A63C A43B A43C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data

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Y	page 5, line 7-17	4,7
A	page 8, line 5,6 page 11, line 28 -page 12, line 8 page 13, line 15-17,24-30 page 14, line 11-13 page 17, line 28 -page 18, line 1 page 24, line 15-17; figures 1-3,6,7,10,12	5,8,10
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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
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INTERNATIONAL SEARCH REPORT

Int onal Application No
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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